TECNA, THE MOST EFFICIENT AND RELIABLE, LOYAL AND SECURE PARTNER FOR THE LOGISTICS AND MAINTENANCE OF YOUR COMPANY.

RANGE

TRC-TRL

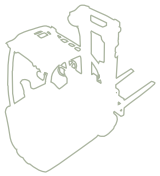
TECNA 2000

Electric forklift truck

Three wheels, two front AC drive motor, 48 V., with TECNA technology Vector control.

- **TRC 16 (B-D) · 1.6 Tn.** C.G.C. a 500 mm. load center
- **TRC 18 (B-D) · 1.8 Tn.** C.G.C. a 500 mm. load center
- **TRL 16 · 1.6 Tn.** C.G.C. a 500 mm. load center
- **TRL 18 · 1.8 Tn.** C.G.C. a 500 mm. load center
- **TRL 20 · 2.0 Tn.** C.G.C. a 500 mm. load center

RANGE TRC-TRL



TRC 16 (B-D) · 1.6 Tn. C.G.C. a 500 mm. load center

TRC 18 (B-D) · 1.8 Tn. C.G.C. a 500 mm. load center

TRL 16 · 1.6 Tn. C.G.C. a 500 mm. load center

TRL 18 · 1.8 Tn. C.G.C. a 500 mm. load center

TRL 20 · 2.0 Tn. C.G.C. a 500 mm. load center

ALL TECHNOLOGICAL ADVANCES OF TECNA CONCENTRATED IN THIS NEW SERIES:

Security

Operation control system for lift speed reduction at curves (Anti turning)

System for speed reduction control (Anti turning).

System for speed reduction control in determined areas (High Security). (Optional).

Ergonomics

Operator compartment with the same dimensions, as those of a greater tonnage.

Manipulation by means of Joystic (option – levers).

Great comfort seat safety belt, weight adjustment and height and leaning-back positioning. Arm-rest included.

LCD display with constant control of the machine functions.

The OHG hight is 2.065 mm, adjustable tall stature.

The low-size model TRC (B) has OHG high of 1.950 mm, adapted to special containers, railway wagons and other.

Productivity

TRC 16/18:

Three-phase AC drive motors, 48 V 2 x 5 kW.

Three-phase AC lift motor, 48 V and 12 kW.

TECNA Vector control.

TRL 16/18/20:

Three-phase AC drive motors, 48 V 2 x 5 kW.

Three-phase of AC lift motor, 48 V and 12 kW.

Vector control TECNA.

TECNA Batteries:

TRC 16/18 - 48 V 500 A (24 kW)

TRL 16/18/20 - 48 V 625 A (30 kW)

Energy regeneration when braking.

Upright

Upright Duplex, Duplex F.L. and Triplex F.L., one perfect GRAN VISION (new generation).

Integral side shifter as Standard.

Display

Display with digital hour meter, battery indicator and constantly providing the driver information on the system conditions of the truck.

P.M service count - down.

Programmable for optimum adaptation of truck characteristics to the operation request (Acceleration, speed, deceleration, braking, etc.) Diagnosis information and warning indicators.

TECHNICAL SPECIFICATIONS ACCORDING TO VDI 2198

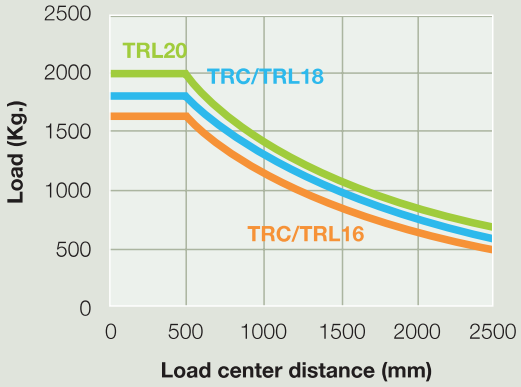
Distinguishing mark	1.1	Manufacturer (Abbreviation)		TECNA						TECNA		
	1.2	Manufacturer´s type designation		TRC-16	TRC-16B	TRC-16D	TRC-18	TRC-18B	TRC-18D	TRL-16	TRL-18	TRL-20
	1.3	Drive: Electric, Battery, Diesel, Petrol, Fuel gal		Battery						Battery		
	1.4	Operator type: Hand, Pedestrian, Standing, Seated		Seated						Seated		
	1.5	Load capacity / Rated load	Q (t)	1,6			1,8			1,6	1,8	2,0
	1.6	Load center distance	F (N)	500						500		
	1.8	Load distance, centre of drive axle to fork	x (mm)	369[1)]						369[1)]		
	1.9	Wheelbase	y (mm)	1314						1423		
Weight	2.1	Service weight (with standard battery)	kg	3230			3380			3175	3375	3575
	2.2	Axle loading, laden front/rear	kg	4271/559			4607/573			4292/483	4618/557	4994/581
	2.3	Axle loading, unladen front/rear	kg	1580/1650			1580/1800			1685/1490	1685/1690	1735/1840
Tyres, Chasis	3.1	Tyres: SE=Superelastic, N=Pneumatic		SE						SE		
	3.2	Tyre size, front		18x7-8						18x7-8		200x50-10
	3.3	Tyre size, rear		16x6-8						16x6-8		
	3.5	Wheels, number front/rear (x=driven wheels)		2x / 2						2x / 2		
	3.6	Tread, front	b10 (mm)	890						890		915
	3.7	Tread, rear	b11 (mm)	210						210		
Dimensions	4.1	Tilt of mast/fork carriage forward/backward	Grad	6 / 6						6 / 6		
	4.2	Height, mast lowered	h1 (mm)	2176						2176		
	4.3	Free lift	h2 (mm)	150						150		
	4.4	Lift height	h3 (mm)	3306						3306		
	4.5	Height, mast extended	h4 (mm)	3846			3903			3846		3903
	4.7	Height of overhead guard (cabin)	h6 (mm)	2065	1950	2065	2065	1950	2065	2065		
	4.8	Seat height	h7 (mm)	920						920		
	4.12	Coupling hight	h10 (mm)	----						----		
	4.19	Overall lenght	l1 (mm)	2978						3087		
	4.20	Lenght to face of forks	l2 (mm)	1878						1987		
	4.21	Overall width	b1 (mm)	1040						1040		1110
	4.22	Fork dimensions	s/e/l (mm)	35x100x1100						35x100x1100		
	4.23	Fork carriage din 15173, class/type A, B		2A						2A		
	4.24	Fork-carriage width	b3 (mm)	1020						1020		
	4.31	Ground clearance, laden, below mast	m1 (mm)	90						90		
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	100						100		
	4.33	Aisle width for pallets 1000(L6)x1200(B12)	Ast (mm)	3210						3319		
	4.34	Aisle width for pallets 1200(L6)x800(B12)	Ast (mm)	3334						3443		
	4,35	Turning radius	Wa (mm)	1515						1624		
	4.36	Internal turning radius	b13 (mm)	0						0		
Performances	5.1	Travel speed, laden/unladen	km/h	16/17						16/17	15,5/17	15,5/17
	5.2	Lift speed, laden/unladen	m/s	0,50/0,66			0,48/0,66			0,50/0,66	0,48/0,66	0,46/0,66
	5.3	Lowering speed, laden/unladen	m/s	0,5/0,48							0,5/0,48	
	5.5	Drawbar pull, laden/unladen	N	----			----			----	----	----
	5.6	Max. Drawbar pull, laden/unladen	N	----			----			----	----	----
	5.7	Gradeability, laden/unladen S2 30 min.	%	15/24			14/23			15/24,5	14/23	12,5/21
	5.8	Max. Gradeability laden/unladen S2 5 min.	%	24/38,5			22/36,5			24,5/39	22/36,5	20,5/34
	5.9	Acceleration time, laden/unladen 10m	s	----			----			----	----	----
	5.10	Service brake		Hydr./Elect.						Hydr./Elect.		
Electri-Motor	6.1	Drive motor rating S2 60 min.	kW	2x6						2x6		
	6.2	Lift motor rating S3 15%	kW	15						15		
	6.3	Battery acc. to DIN 43531/35/36 A,B,C, no		no						no		
	6.4	Battery voltage, nominal capacity k5	V/Ah	48/500						48/625		
	6.5	Battery weight	kg	700						856		
	6.6	Energy consumption acc. To VDI cycle	kWh/h	----			----			----	----	----
Addition data	8.1	Type of drive control		AC / Inverter						AC / Inverter		
	8.2	Operating pressure for attachments	bar	140						140		
	8.3	Oil volume for attachments	l/min	----						----		
	8.4	Sound level at the driver´s ear acc. To DIN 12 053	dB (A)	----						----		
	8.5	Towing coupling, type DIN		----						----		

1) +25 mm with lateral shideshifter included.
TECNA products and Specifications are submited to modifications without previous notification.

Table of masts

Designation	Lift height h3 mm	Free lift h2 mm		Heignt lowered upright h1 mm	Height extended upright h4 mm		Tilt forward/ backward
		TRC/TRL 16 (B)	TRC/TRL 18-20 (C)		TRC/TRL 16 (B)	TRC/TRL 18-20 (C)	
DUPLEX	2860	150	150	1953	3400	3457	6 / 6
	3080	150	150	2063	3620	3677	6 / 6
B21	3306[1]	150[1]	150[1]	2176[1]	3846[1]	3903[1]	6 / 6
C21	3630	150	150	2338	4170	4227	6 / 6
	3930	150	150	2488	4470	4527	6 / 6
	4230	150	150	2788	5070	5127	6 / 6
	4530	150	150	2938	5370	5427	6 / 6
DUPLEX	2910	1413	1322	1953	3450	3541	6 / 6
Free lift	3130	1523	1432	2063	3670	3761	6 / 6
	3350	1636	1545	2176	3890	3981	6 / 6
B22	3700	1812	1721	2352	4240	4331	6 / 6
C22	4100	2012	1921	2552	4640	4731	6 / 6
	4500	2212	2121	2752	5040	5131	6 / 6
	4900	2412	2321	2952	5440	5531	6 / 6
TRIPLEX	4330	1413	1322	1953	4870	4961	6 / 6
	4660	1523	1432	2063	5200	5291	6 / 6
B32	5000	1636	1545	2176	5540	5631	6 / 6
C32	5500	1812	1721	2352	6040	6131	6 / 4
	6000	2012	1921	2552	6540	6631	6 / 4
	6500	2212	2121	2752	7040	7131	6 / 4
	7000[2]	2412[2]	2321[2]	2952[2]	7540[2]	7631[2]	6 / 2[2]

Load capacity



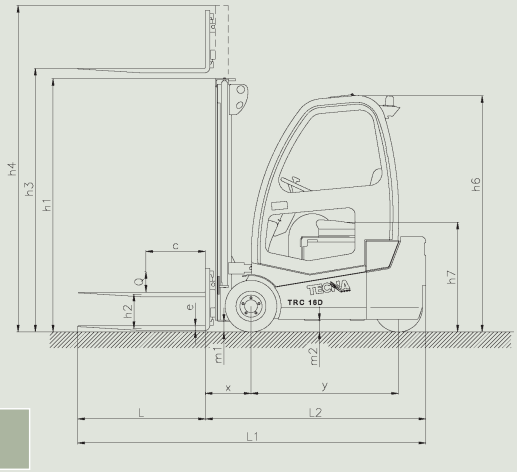
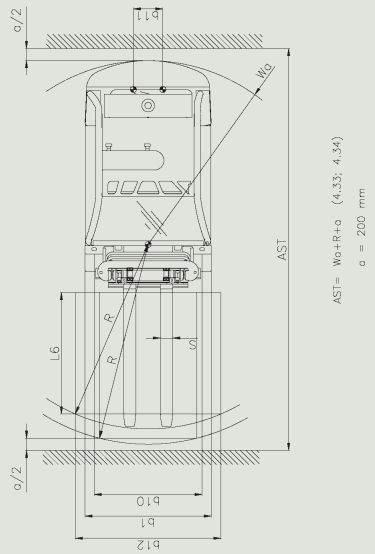
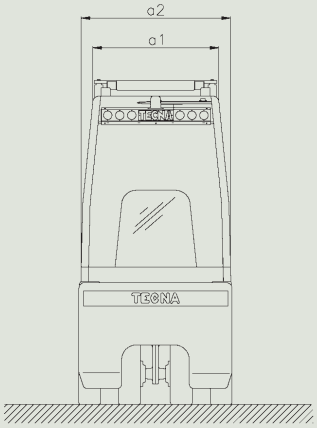


Table of load capacities (kg)

Model	TRC16/TRL16				TRC18/TRL18				TRL20			
Superelastic tyre	18x7-8				18x7-8				200x50-10			
Tread, front	890				890				915			
Designation	Fork carriage		Integrated sideshift		Fork carriage		Integrated sideshift		Fork carriage		Integrated sideshift	
	c (mm)		c (mm)		c (mm)		c (mm)		c (mm)		c (mm)	
	500	600	500	600	500	600	500	600	500	600	500	600
DUPLEX	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
B21	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
C21	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
	1525	1425	1450	1300	1725	1625	1625	1475	1925	1800	1825	1650
	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
DUPLEX	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
Free lift	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
B22	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
C22	1550	1425	1450	1300	1750	1625	1650	1475	2000	1800	1825	1650
	1425	1375	1325	1300	1575	1550	1500	1475	1750	1725	1675	1650
	1600	1425	1450	1300	1800	1625	1650	1475	2000	1800	1850	1650
	1500	1425	1400	1300	1675	1625	1575	1475	1875	1800	1775	1650
TRIPLEX	1375	1350	1300	1275	1550	1525	1450	1425	1725	1675	1625	1600
	1225	1200	1150	1125	1350	1350	1275	1275	1500	1475	1425	1400
B32	1050	1050	1000	975	1175	1150	1100	1100	1300	1275	1225	1200
C32	925	900	850	850	1000	1000	950	925	1100	1075	1050	1025
	775	775	725	725	850	850	800	800	925	900	875	875





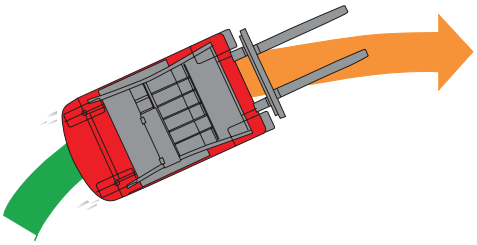
1) Standard. 2) Models TRC/TRL-1600/1800 kg with mast 7000 mm, front wheels 200-50-10 (front tread 915 mm).
Specifications are without obligations for typographical errors.

¿Danger?

GET TO KNOW THE ACTIVE SECURITY OF FORKLIFT TRUCKS TECNA AND COOL DOWN.

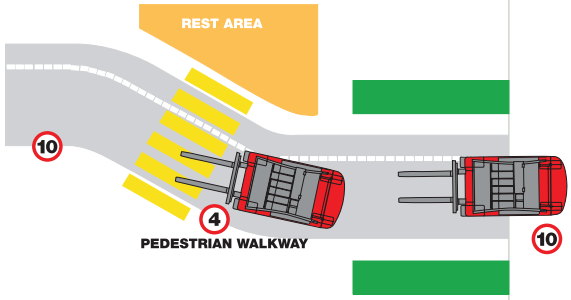
1 Anti-overturning electronic system

When turning, the forklift truck TECNA 2000 reduces its speed proportionally to the curve degrees.



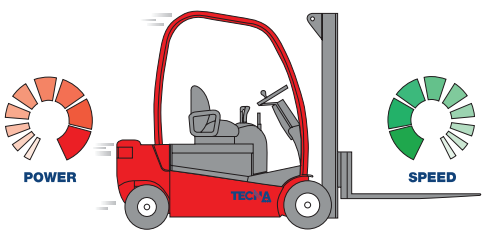
2 Speed limitation in predetermined zones*

Automatic system for predetermination of maximal speed in different areas of work.
*(optional)



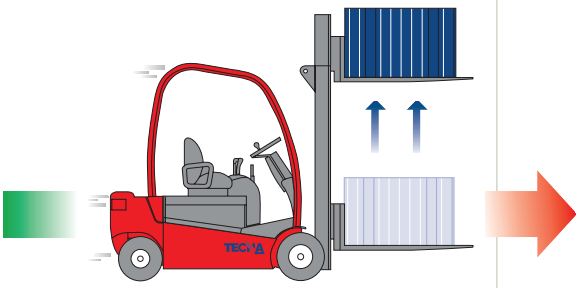
3 Speed and power control

The forklift truck TECNA 2000 disposes of device for speed limitation without power loss.



4 Speed limitation with lifting device

When lifting the cargo at a determined altitude, the speed of forklift truck displacement is automatically reduced.



Technical data and specifications of forklift truck TECNA version with three wheels, front drive 48 V. Vertor control.

Series TRC 16/18 (B-D): 1.600 and 1.800 Kg
Series TRL 16/18/20: 1.600, 1.800 and 2.000 Kg

Driving

The forklift truck operation has exceptional ergonomic conditions. Easy access to operator compartment due to its low height of construction (550 mm). The steering column multi-positioning and the seat adjusted in height and resting, allows adaptation to the body characteristics of each person. The pedals are of automotion type making easy the adaptation to driving the truck. The Joystic, easy accessible, permits very sensible control of lifting tilting side shifter. The hydrostatic steering is operated without any effort, the system for actuating the pump functions only is required by the steering-wheel guaranteeing great energy saving. The vector control system permits easy change,from forward to reverse, and offering easy and smooth dynamic operation. The noise level in operator's ears is according to Standard DIN 12 053 < 65 dB.

Motors and technologies AC

The drive motors, as well as the hydraulic one are CA, class F with protection IP20, without carbon brushes nor collector, are prepared for the hardest applications. In case of contaminated atmosphere, they are dust and dirtiness resistant. The availability for selection of systems with different output, gives acceleration and one very good lifting capacity. This is one of the greatest advantages of AC. This technology permits the machine components to be revised and checked at longer periods of time, which significantly reduces the costs for maintenance.

Uprights

With good visibility (Gran Visibilidad), Duplex (Duplex), Duplex free lift and Triplex free lift. Specific design of I profiles compactly bent in, strongly to torsion and assembled with inclined bearings, replaceable and adjustable by means of shims (allows great improvement in profitableness of maintenance when implementing this operation for quite a short time) greased for life. The lift cylinders with break system at both ends of its stroke, are installed in the cavities of the curves. The upright is connected to the chassis by means of greased bushings. This upright is characterized with high security rate, which supplied by the powerful engine pump of 12 kW, permits the quick lifting. They integrate a control system for speed limitation went lifting. (Against overturning).

Vector control

The Vector control follows the Frequency Control (motion control, Slip Control) in the whole range of counterbalance forklift trucks and tow tractors Tecna. This technology eliminates all components related to wear-out and maintenance (unlimited functioning). The module system of power equipments (invertors), interchangeable in between them, with a map for general control for all analogue and digit signals of the system, operated by powerful microprocessors (DSP), and the motor mathematically driven in real time gives maximal result (Vector Modulation). The system allows machine high stability in its all three stages of operation (low,standard, high average and high), obtaining high levels of output and efficiency due to its dynamic concept. The display provides the following stages of information: usage, diagnosis, calibration and signalization. All this includes a new range of motors, which do not require maintenance, moreover, a new secure generation has been used. The combination of all these systems protects against overheating in the system, which is in direct ration to battery autonomy.

Transmission

The front two drive motors are carried out by means of independent and separate transmissions with gears constantly connected with inside a bath of oil. The steady conjunctions with easy access are perfectly protected in its position, by the chassis.

Steering Axle

The steering axle incorporate, as a new feature, a turning radius up to 185•fs26, which permits an improved maneuvering compared to the traditional three wheels forklift trucks. The axle has two indentical integrates two identical wheels of 16/6•, which significantly improves the stability and maintenance of rear axle.

Hydraulic system

The big reservoir for hydraulic oil is integrated to the frame structure, due to which the liquid refrigeration is aided to a great extent from this configuration. The sections for oil conduction are short, without curves, no prerequisites for energy loss from rubbing or friction heating are generated. It incorporates safety valves in elevation and descent and auxiliary valves for overpressure. In the tilting circuit there is an anti-cavity system. In the retard circuit is incorporated a filter of 25 microns. The main hydraulic valve may incorporate one 4th functions and auxiliary electrovalves.

Brakes

The front axle brakes are multidisc system in constant bath of oil, actuated by a pedal of «automotion» type heaving long life without maintenance. Electronic breaking with energy recovery. Hand brake for parking.Proportional electronic brake.

Frame

The frame designed by means of a computer using the system for finite methods, forms a very stable and robust set, integrating also the motors and the steering axle. Its low profile provides an optimal center of gravity of the forklift, which besides its good appearance, secures a high safety rate of these machines.

Battery

The serial battery TECNA perfectly fits its place, fixed in operating position by means of a well designed access, which secures protection from the truck roof to the driver. For that reason its extraction and placement back is realized in very short time.

CE

Security. This family of machines completely meets the actual Standards of CEE. The specifications may be changed and modified without preliminary notification.

Official distributor:

Pol. Ind. Arazuri-Orcoyen, C 5-7 Str.
31170 ARAZURI (Navarra)
Tel.: +34 948 324 660
Fax: +34 948 324 404
E-mail: tecna2000@tecna2000.com
www.tecna2000.com

6-2007